

**TRANSLATION**

**PATENT COOPERATION TREATY**

**PCT**

**INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY**

(Chapter II of the Patent Cooperation Treaty)

(PCT Article 36 and Rule 70)

Applicant's or agent's file reference <b>PT 04-340-WO</b>	<b>FOR FURTHER ACTION</b>		See Form PCT/IPEA/416
International application No. <b>PCT/EP2004/011688</b>	International filing date (day/month/year) <b>16.10.2004</b>	Priority date (day/month/year) <b>07.11.2003</b>	
International Patent Classification (IPC) or national classification and IPC <b>B22D17/00, C22C1/00, C22C32/00, C22C23/00, C22C1/04</b>			
Applicant <b>MAHLE GMBH</b>			
<p>1. This report is the international preliminary examination report, established by this International Preliminary Examining Authority under Article 35 and transmitted to the applicant according to Article 36.</p> <p>2. This REPORT consists of a total of <b>5</b> sheets, including this cover sheet.</p> <p>3. This report is also accompanied by ANNEXES, comprising:</p> <p>a. <input checked="" type="checkbox"/> (<i>sent to the applicant and to the International Bureau</i>) a total of <b>2</b> sheets, as follows:</p> <p><input checked="" type="checkbox"/> sheets of the description, claims and/or drawings which have been amended and are the basis for this report and/or sheets containing rectifications authorized by this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions).</p> <p><input type="checkbox"/> sheets which supersede earlier sheets, but which this Authority considers contain an amendment that goes beyond the disclosure in the international application as filed, as indicated in item 4 of Box No. I and the Supplemental Box.</p> <p>b. <input type="checkbox"/> (<i>sent to the International Bureau only</i>) a total of (indicate type and number of electronic carrier(s)) _____, containing a sequence listing and/or tables related thereto, in computer readable form only, as indicated in the Supplemental Box Relating to Sequence Listing (see Section 802 of the Administrative Instructions).</p> <p>4. This report contains indications relating to the following items:</p> <p><input checked="" type="checkbox"/> Box No. I Basis of the report</p> <p><input type="checkbox"/> Box No. II Priority</p> <p><input type="checkbox"/> Box No. III Non-establishment of opinion with regard to novelty, inventive step and industrial applicability</p> <p><input type="checkbox"/> Box No. IV Lack of unity of invention</p> <p><input checked="" type="checkbox"/> Box No. V Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement</p> <p><input type="checkbox"/> Box No. VI Certain documents cited</p> <p><input type="checkbox"/> Box No. VII Certain defects in the international application</p> <p><input type="checkbox"/> Box No. VIII Certain observations on the international application</p>			

Date of submission of the demand	Date of completion of this report
Name and mailing address of the IPEA/EP	Authorized officer
Facsimile No.	Telephone No.

## INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY

International application No.

PCT/EP2004/011688

## Box No. I Basis of the report

1. With regard to the **language**, this report is based on the international application in the language in which it was filed, unless otherwise indicated under this item.
 

This report is based on translations from the original language into the following language \_\_\_\_\_, which is the language of a translation furnished for the purposes of:
 
  - international search (Rule 12.3 and 23.1(b))
  - publication of the international application (Rule 12.4)
  - international preliminary examination (Rule 55.2 and/or 55.3)
2. With regard to the **elements** of the international application, this report is based on (*replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to this report*):
 

the international application as originally filed/furnished

the description:
 

pages 1-8 \_\_\_\_\_ as originally filed/furnished

pages\* \_\_\_\_\_ received by this Authority on \_\_\_\_\_

pages\* \_\_\_\_\_ received by this Authority on \_\_\_\_\_

the claims:
 

nos. \_\_\_\_\_ as originally filed/furnished

nos.\* \_\_\_\_\_ as amended (together with any statement) under Article 19 21.05.2005 with letter of 20.05.2005

nos.\* 1-12 \_\_\_\_\_ received by this Authority on \_\_\_\_\_

nos.\* \_\_\_\_\_ received by this Authority on \_\_\_\_\_

the drawings:
 

sheets \_\_\_\_\_ as originally filed/furnished

sheets\* \_\_\_\_\_ received by this Authority on \_\_\_\_\_

sheets\* \_\_\_\_\_ received by this Authority on \_\_\_\_\_

a sequence listing and/or any related table(s) – see Supplemental Box Relating to Sequence Listing.
3.  The amendments have resulted in the cancellation of:
 

the description, pages \_\_\_\_\_

the claims, nos. \_\_\_\_\_

the drawings, sheets/figs \_\_\_\_\_

the sequence listing (*specify*): \_\_\_\_\_

any table(s) related to sequence listing (*specify*): \_\_\_\_\_
4.  This report has been established as if (some of) the amendments annexed to this report and listed below had not been made, since they have been considered to go beyond the disclosure as filed, as indicated in the Supplemental Box (Rule 70.2(c)).
 

the description, pages \_\_\_\_\_

the claims, nos. \_\_\_\_\_

the drawings, sheets/figs \_\_\_\_\_

the sequence listing (*specify*): \_\_\_\_\_

any table(s) related to sequence listing (*specify*): \_\_\_\_\_

\* If item 4 applies, some or all of those sheets may be marked "superseded."

## INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY

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Box No. V	Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
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## 1. Statement

Novelty (N)	Claims	1-9	YES
	Claims	10-12	NO
Inventive step (IS)	Claims	1-9	YES
	Claims	10-12	NO
Industrial applicability (IA)	Claims	1-12	YES
	Claims		NO

## 2. Citations and explanations (Rule 70.7)

1 This report makes reference to the following documents:

D1: WO 03/027342 A or the translation of  
**EP-A-1433862**

D2: PATENT ABSTRACTS OF JAPAN Vol. 0183, No. 44  
(C-1218), 29 June 1994 (1994-06-29) &  
JP 6 081068 A (see also the JPO Internet  
translation)

D3: EP 0 773 302 A

D4: EP-A-0 478 025

2 Novelty

2.1 The feature "thixomolding" is according to claim 1 when a material is produced in a method for the **in situ** production of Mg<sub>2</sub>Si of a composite material, that is Mg<sub>2</sub>Si is produced by that method.

2.2 Document D1 discloses (see the search report citations, in particular examples 1, 2, 201 and 203) the mixing of at least two materials, namely Mg or Mg alloys and Si as particles, followed by

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either "compacting" and thermal treatment for producing a metal-matrix composite material (MMX) that contains Mg<sub>2</sub>Si as reinforcing component, or purely mechanical or "plastic" (i.e. "solid phase") processing to produce Mg<sub>2</sub>Si.

The product thus produced is then extruded using a "thixo method" to produce the finished article. Additional processing, such as reshaping or the like, is also possible.

The subject matter of claim 1 thus meets the requirements of PCT Article 33(2).

The difference in the "thixomoulding method" in claim 1 means that a different method is used to produce cast parts (i.e. close to the finished dimensions), the advantages of the claimed method being specified in the first paragraph on page 4 of the description.

2.3 Documents D2 and D3 (Al+Mg+Mg<sub>2</sub>Si) mention processing by the thixocasting of finished "MMXs that contain Mg<sub>2</sub>Si" (and with similar contents of Mg, Si and Mg<sub>2</sub>Si), but do not indicate how the deposited Mg<sub>2</sub>Si phase is produced.

The subject matter of claim 1 thus meets the requirements of PCT Article 33(3).

2.4 Claims 10 to 12 are drafted as "product by process" or "use" claims, the MMX not been defined

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in a sufficiently clear manner. All products that are already disclosed in D1, D2 or D3 are therefore prejudicial to novelty.

In the absence of features which clearly delimit the claimed product in relation to those that are already known (D1-D3), the product claimed as per claims 12 and 13 is not novel or inventive (PCT Article 33(2) and (3)).

It is also not clear from the application description whether (and if so how) the metallurgic structure is different from that of **D4**, that is whether the method of production results in the product *per se* having any novel technical effects or advantages.